



Childhood Diabetes

Presented by:

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Thanks to our Sponsors:

- School of Public Health, University at Albany
- NYS Department of Health
- NYS Community Health Partnership

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- NYS Association of County Health Officials
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Evaluations

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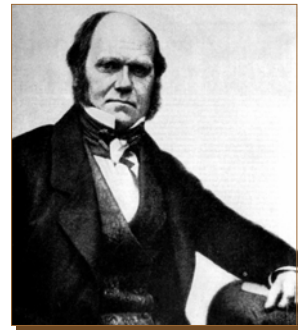
DIABETES AMONG YOUTH



Division of Diabetes Translation

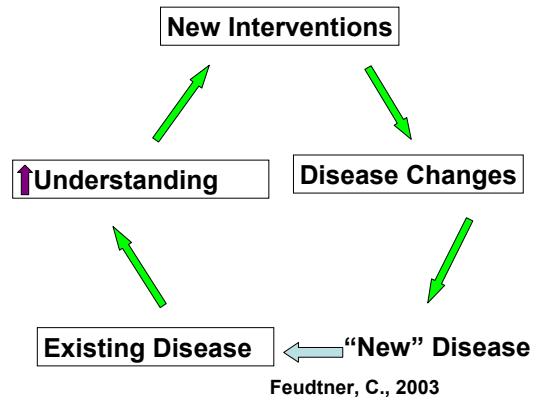
Centers for Disease Control and Prevention

REDUCING
THE BURDEN
OF DIABETES



Charles Darwin

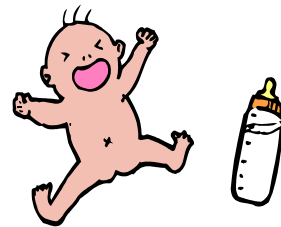
“Bitter Sweet: Diabetes, Insulin and the Transmutation of Illness”
Feudtner, C. 2003



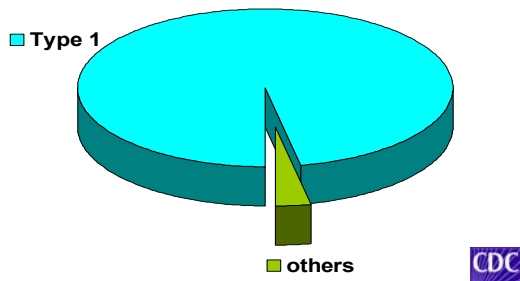


"You can't step in the same river twice!"

When I Was Young!



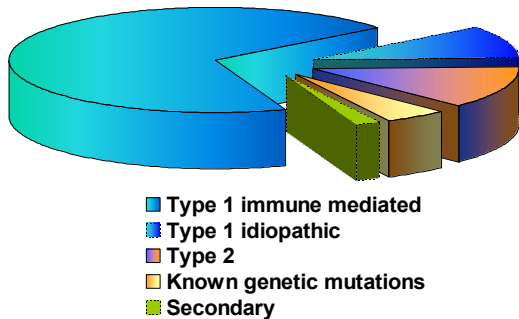
Childhood Diabetes: The Past



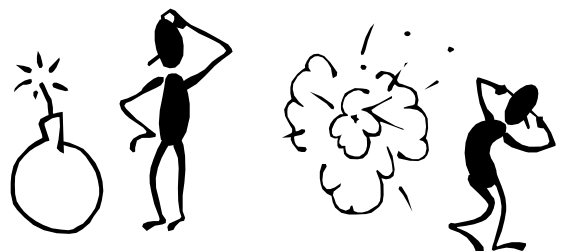
Now I Am Old!



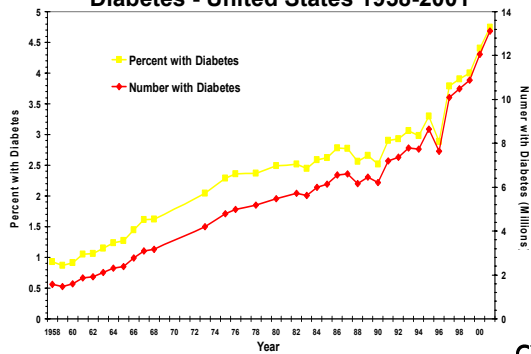
**Childhood Diabetes:
the Present?**



***It's Bad; It's Been Getting Bad; And
It's Going To Get Worse!***



Prevalence of and Number With Diagnosed Diabetes - United States 1958-2001



Engelgau et al Ann Intern Med 2004 in press

CDC

Every 24 Hours

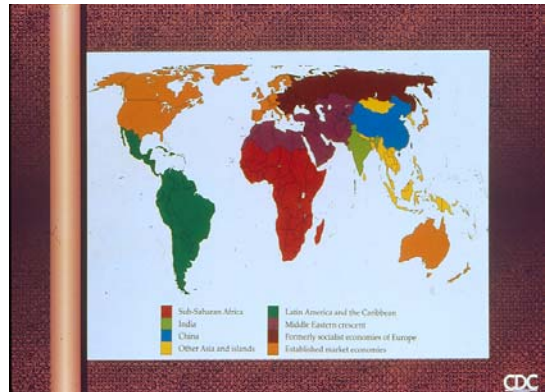
- New Cases – 3,600
- Deaths – 580
- Amputations – 225
- Kidney Failure – 120
- Blindness - 55



Life-Time Risk Of Diabetes (Born in 2000)

- Overall – 1/3
- AA/Hispanic - 2/5
- Hispanic Female – 1/2

Narayan, V. et al JAMA 10/03



CDC

Ascertainment

Demographics

Why?

Behaviors

Demographics

- More people
- Older people
- More populations at risk

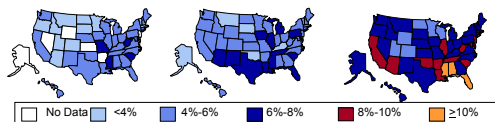
Trends in Obesity/ Diabetes Among U.S. Adults, Behavioral Risk Factor Surveillance System 1990-2001

Diabetes (Including Gestational Diabetes)

1990

1995

2001



Mokdad AH, et al. JAMA 282:16, 1999, and 286:10, 2001.

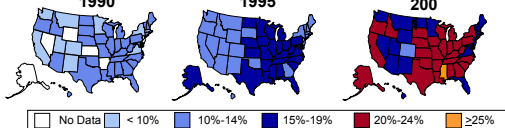
Trends in Obesity/ Diabetes Among U.S. Adults, BRFSS 1990-2001

Prevalence of Obesity (BMI 30+ kg/m²)

1990

1995

2001

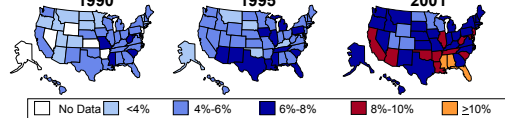


Diabetes (Including Gestational Diabetes)

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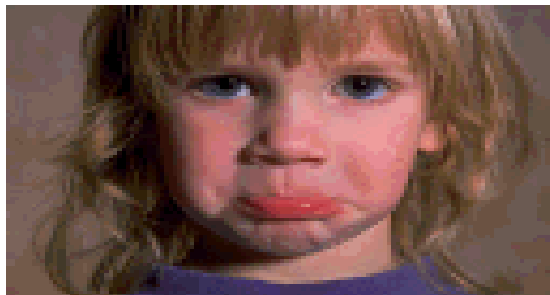


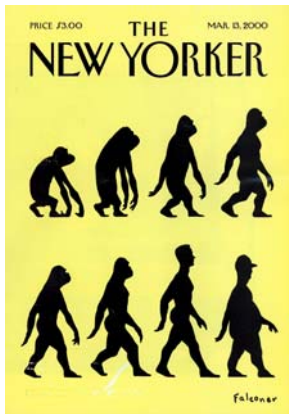
Mokdad AH, et al. JAMA 282:16, 1999, and 286:10, 2001.

Carbo/Lipo-Terrorism!



Is The Increased Weight Being Counter-Balanced By Increased Activity?





“Genetics May Load The Cannon, But Human Behavior Pulls The Trigger.”

E. Joslin, MD 1924

Agenda

- Charles Darwin
- Diabetes in the U.S. and World
- Childhood Diabetes
 - Type 1, Type 2, Can We Tell
- Challenges
- Summary

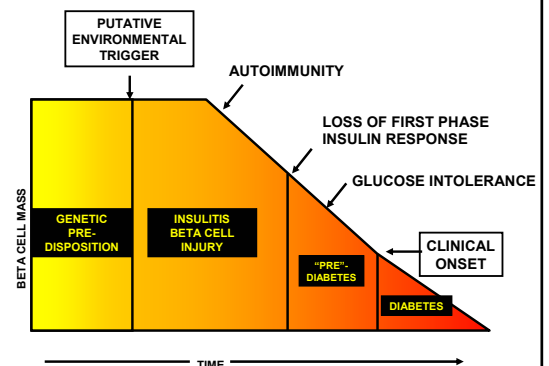
Type 1 Diabetes - Then

- “All” Diabetes < 20
- Pretty Sudden Onset
- Strong Family History
- Real Difficult to Manage (“Brittle”)

Type 1 Diabetes - Now

- Absolute insulin deficiency; probably an autoimmune disease
- Slow onset of basic disease process
- 70% “sporadic,” i.e. no F. Hx.
- Good control possible

Natural History of Type 1 Diabetes (?)

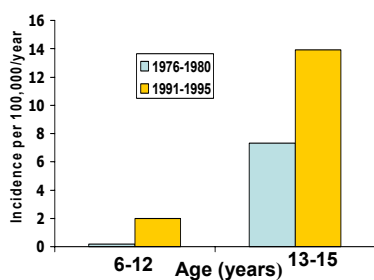


Type 1 Diabetes - Incidence (#/100,000/Yr.)

<u>COUNTRY</u>	<u>90s</u>	<u>2010</u>
Finland	30	58
"USA"	14	37
Hungary	6	20
Japan	2	8
China	1	3



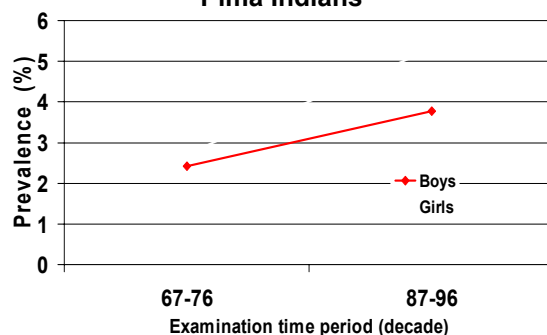
Incidence of Type 2 Diabetes in Japanese Children, 1976-1995



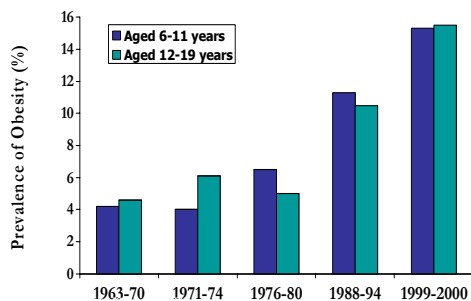
Kitagawa et al. Clinical Ped, 1998



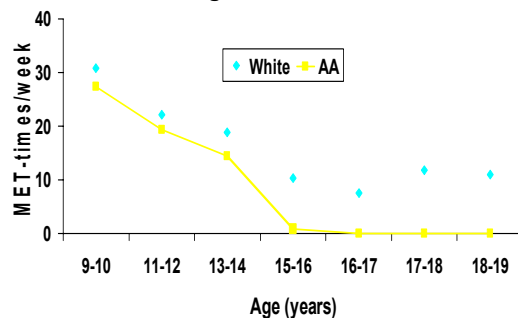
Prevalence of Type 2 DM in 15 – 19 Year Old Pima Indians



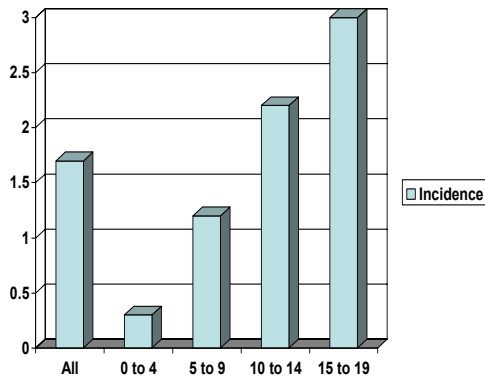
Trends in Obesity* Prevalence among Children and Adolescents in the U.S., 1963-2000



Habitual Leisure-time Physical Activity in Girls by Age and Race



Prevalence of DM in Youth



**I
M
P
A
C
T**

LOTS

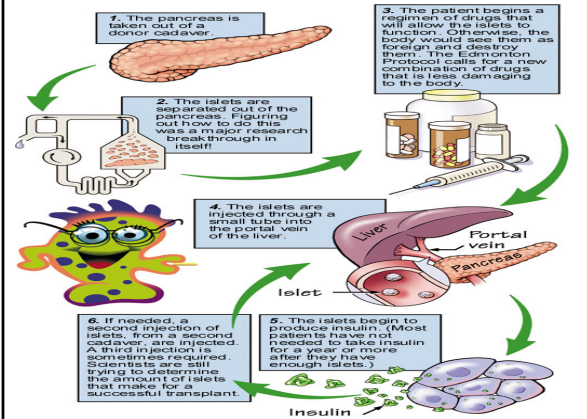
SOME

FEW

MORE

Number/Quality of interventions

The Edmonton Protocol Transplant Procedure



Risk Factors for T2D in Children

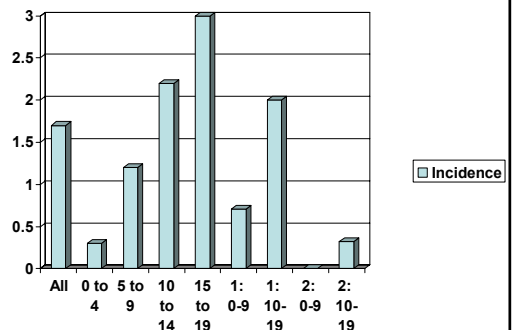
- Obesity
- Lack of physical activity
- Diet
- Genetic predisposition
- Exposure to diabetes in utero



Search for Diabetes in Youth Study

Funded by CDC and supported by
NIDDK

Prevalence of DM in Youth



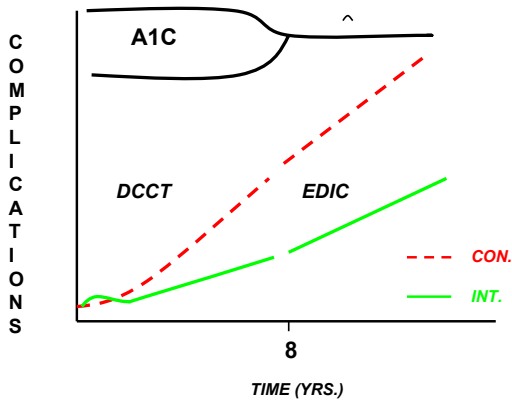
Incidence of DM in Youth (#/100,000/Year)

- 1224 New Onset Cases (5.28 M Children)
- By Age:
 - 14.1 (0-4 Yrs.); 24.7 (10-14); 32.6 (10-14); 20.7 (15-19)
- Standardized Incidence Ratio (SIR)

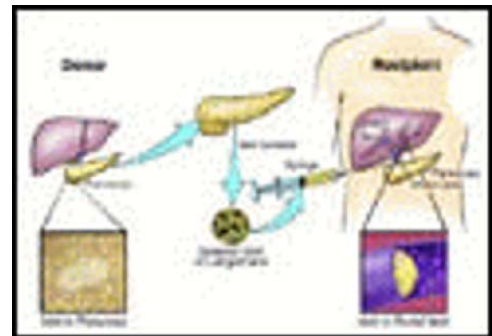
<u>AGE</u>	<u>O/E</u>	<u>SIR</u>
0-9	491/317	1.6
10-19	733/546	1.3

Type 1

- “Imprinting”
- “Cure” – Islet Cell Transplantation



“Edmonton Protocol”



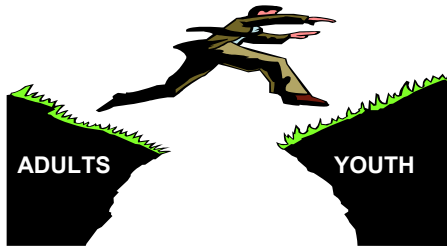
Type 2

- Care “vs.” Cure “vs.” Prevention
- Prevention - Some Examples
 - VERB
 - PLANET HEALTH
 - SCHOOLS
 - “Education”
 - “Policies” – Pouring Contracts

All!

- Impaired Glucose Tolerance +/- Others
- ≥ 18 Years of Age

Inferential Leap?

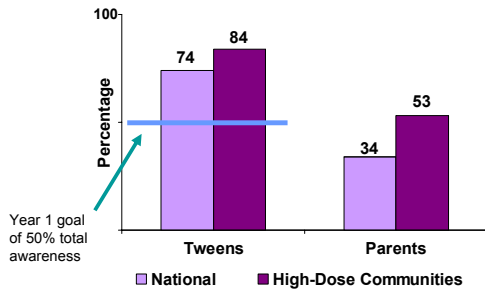


“VERB – A Social Marketing Campaign to Increase Physical Activity Among Youth”

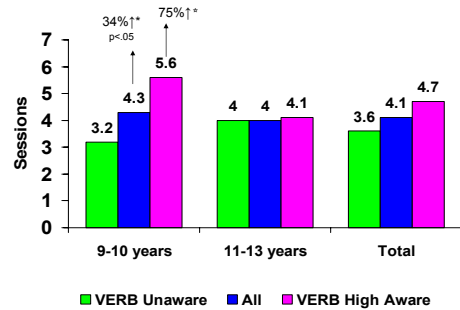


Wong, F. et al. Prev. Chronic Dis July, 2004:

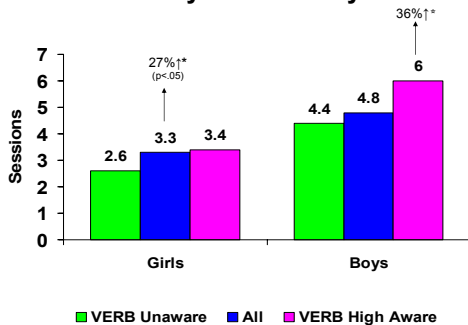
Tween & Parent Awareness of VERB



Effects of VERB by Age - National Free-Time Physical Activity Sessions



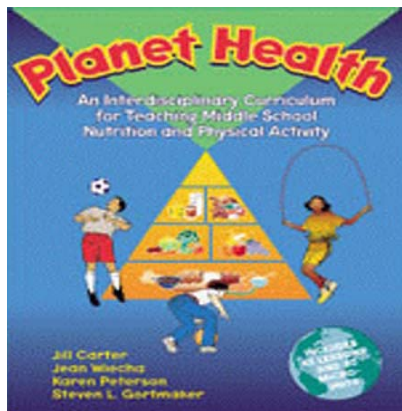
Effects of VERB by Gender - National Free-Time Physical Activity Sessions



Campaign “Success Factors”

- ✓ Hire the “best kids marketers.”
- ✓ Negotiate media partner added value opportunities.
- ✓ Know the audience: conduct extensive formative research.
- ✓ Be a “for tweens/by tweens” campaign.
- ✓ Use positive “can do” messaging.
- ✓ Test concepts & messages w/audience.
- ✓ Continuously evaluate & adjust campaign strategies.





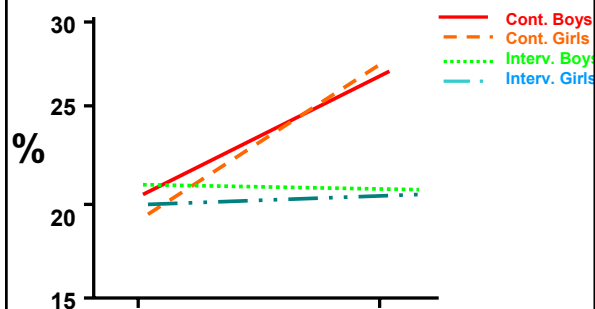
- 479 Grade 4 Students (91% AA); 6 Intervention vs. 8 Control Schools
- Eat Well/Keep Moving Program Taught by Teachers Over 2 Yrs. In "Regular Classes;" Links Provided to Other Programs, e.g. School Food Services, Wellness Programs; Activity Programs; Guidance to TV Viewing; etc.
- * In Intervention Grp - Knowledge; Consumpt of Fat/Sat. Fat; Fruit/Veg. Intake; Fiber Intake; TV Viewing (Sl.); Vigorous P.A.; Weight (Sl.)

"Preventing Childhood Obesity by Reducing Consumption of Carbonated Drinks: Cluster Randomized Controlled Trial"

- 644 Children, aged 7-11 Years
- Focused Ed. Prog. on Nutrition – 1 Yr.
- ↓ 0.6 Glasses/3 Days – Interv. Grp.
- ↑ 0.2 Glasses/3 Days – Control Grp.0

BMJ 4/2004

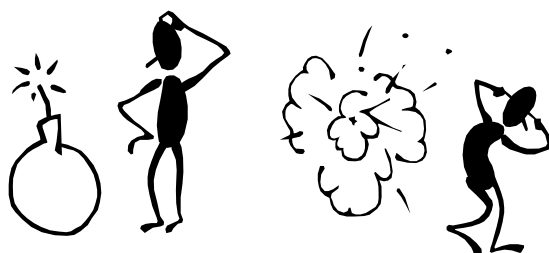
"Preventing Childhood Obesity By ↓ Consumption of Carbonated Drinks"



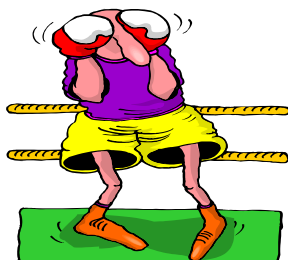
BMJ 4/2004



It's Bad; It's Been Getting Bad; And It's Going To Get Worse!



We Are Not Paralyzed!



Frank Vinicor

fxv1@cdc.gov

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Evaluations

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post-test online at:**

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